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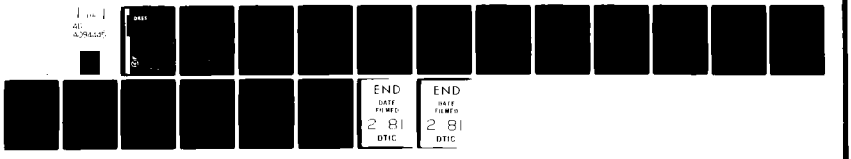

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SUFFIELD MEMORANDUM

NO. 1008

PROTOCOL FOR THE MENINGOCOCCAL CONTROL PROGRAMME - CANADIAN FORCES BASE CORNWALLIS AND CANADIAN FORCES BASE ST. JEAN 1980/81 (U)

by

L.A. White and G. Humphreys, Maj. (DMP-3)

Technical Program 16 - Operational Medicine
and
Task DPM 19

November 1980

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Abstract

Instructions are provided to the Laboratory and Preventive Medicine personnel of the Base Hospitals at CFB Cornwallis and CFB St. Jean to enable them to carry out sampling and treatments in accordance with the Surgeon-General's program on meningococcal control. Two programs, the Acute Case Monitoring Program (ACMP) and the Specialized and Intensive Monitoring Program (SIMP) are described. Techniques for the collection of *Neisseria meningitidis* from the air, for cultivating and serogrouping this organism are presented.

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INTRODUCTION

Reference A: Protocol for the Meningococcal Control Programme CFB Cornwallis and CFB St. Jean 1977/78

1. This paper amends Reference A and is the protocol for the Meningitis Control Programme as authorized by the Surgeon General for 1980/81 and for succeeding years until amended or cancelled.

AIM

2. The aim of this protocol is to outline the manner and methods of implementing the meningococcal control programme at CFB Cornwallis and CFB St. Jean with respect to:

a. the procedures to be undertaken on the members of a course when one or more individuals from that course contracts acute meningococcal meningitis; and
b. intensively following the members of selected courses during their 11 week training.

GENERAL

3. The two programmes described shall be known as:

a. the acute case monitoring programme (ACMP); and

b. the specialized and intensive monitoring programme (SIMP).

4. Routine immunization including the administration of bivalent group "A" and "C" polysaccharide meningococcal vaccines shall be carried out.

5. This protocol is to be implemented on receipt, unless otherwise stated.

6. Each recruit is given a master number on arrival at recruit school. This number, the SIN and surname shall be used for identifying and recording results of all subjects entered into each of the programmes.

ACUTE CASE MONITORING PROGRAMME (ACMP)

7. In the event of a case of acute meningococcal meningitis occurring in an individual, DPM and DRES are to be notified by priority message as described in para 21. DPM should also be contacted by telephone immediately. DRES will send one investigator to the base or bases involved within five days to assist in the undertaking of the following procedures.

8. Post Nasal Swabs (PNS)

All remaining members of the training course of which the infected recruit was a member will be assembled and the regimen of prophylaxis as outlined in para 9 will be instituted. Prior to administration of antibiotic, a PNS will be collected from each member of the course. The swab will be placed in a rubber-stoppered glass vial containing approximately 1 mL of trypticase soy broth (TSB) which contains 10% dimethyl sulfoxide (DMSO), frozen and held at -70°C in a deep freeze. These recruits shall be swabbed prior to each

subsequent administration of antibiotic. Frozen swabs will be held for analysis by the DRES research team on their arrival at the Base.

Additional PNSs will be collected from each member of the course once per week (on the same day each week). These swabs will either be cultured and serogrouped at the Base as outlined in para 16 or frozen on dry ice and transported to DRES in accordance with the instructions outlined in Suffield Technical Note No. 399, copies of which have been supplied to both CFB Cornwallis and CFB St. Jean.

9. Chemoprophylaxis

After the first PNS are taken, all members of the course shall be given the following chemoprophylaxis regimen: Minocycline 200 mgm stat followed in 12 hours by 100 mgm Q12h for two doses. After a further 12 hours, Rifampin 600 mgm Q12h for four doses. Sulfadiazine need not be given to either close or remote contacts. Bases shall maintain a minimum supply of 1000 tablets of both drugs, in the event of two courses requiring to be treated prophylactically.

10. Upon diagnosis of overt meningococcal meningitis, air samples will be collected in the barracks where the infected individual has been housed. A minimum of four 10-min. samples are required. These are to be frozen immediately and held at -70°C until the arrival of the DRES team. It is important that such samples be collected prior to the institution of chemoprophylaxis as outlined in para 9.

The Technique of Air Sampling

Samples will be undertaken in the appropriate barrack block after the barracks have been occupied for at least two hours, if possible. The DRES modified large volume air sampler will be used. A 10 minute sample will be taken with the sampler being moved continually from one end of the room to the other; at least two circuits shall be made. The collecting fluid shall be TSB. The volume of the sample will be estimated and sufficient sterile DMSO added to give a final concentration

of approximately 10%. The sample will then be placed immediately in an Iso-therm container filled with dry ice. The filled container must be on hand in the barracks to ensure rapid freezing since it has been found that aerosolized meningococci die rapidly if permitted to stand in the collecting fluid.

11. Surface Sampling

Surface samples will be taken at the same time as air sampling. These will be taken using swabs moistened with TSB. Surfaces to be swabbed will include at least 4 sleeping areas, blankets, pillows, bed frames, floor lockers, window sills, clothing and the ablutions area (especially taps). The swabs will be placed in sealed tubes containing about 1 mL of TSB which contains 10% DMSO. Tubes should be labelled by means of surgical tape and numbered. A reference sheet shall be prepared for each set of swab samples so that they may be identified. Samples will be frozen immediately on dry ice while in the barracks as outlined for air samples (see para 10) and held at -70°C until the arrival of the DRES team.

12. Samples From an Acute Case

As a general rule, patients who are diagnosed with acute meningococcal meningitis are rapidly transferred to a definitive care hospital such as Canadian Forces Hospital, Halifax or the Queen Mary Veterans' Hospital in Montreal. Annex A contains a miniprotocol for the collection of samples from these patients. In the event of the patient being transferred, it is suggested that the Base Surgeon inform the screening hospital of the requirements for collection of samples, and make arrangments for the pick-up of these samples for onward transmission to DRES. This Annex has been written in such a form that it can be copied and given to the appropriate authorities at the receiving hospital.

13. Reports and Returns

The results of post nasal swabbing shall be entered on the form

shown at Annex B to this protocol. Similarly the results of air and surface swabbing shall be completed on the form shown at Annex C. The two forms shall be forwarded at the end of the study programme in accordance with the directions in para 19.

THE SPECIALIZED AND INTENSIVE MONITORING PROGRAMME (SIMP)

14. The SIMP program is presently in abeyance. However, it is possible that specialized monitoring may be required to further investigate findings and observations of earlier studies. At least 1 month's notice shall be provided to enable the Base to make arrangements for undertaking this program. The SIMP programme may involve one or all of the following: collection of post nasal swabs, blood sera samples, air samples and surface samples and culturing of *N. meningitidis* from post nasal swabs, serogrouping of such isolates and perusal of the CF 2016's on each individual. When a specialized program is set up, an individual protocol will be issued which will identify all procedures to be carried out. Annex D illustrates the timings of the various procedures which may have to be undertaken.

15. Post Nasal Swabs (PNS)

PNS will be taken each week and will be cultured and grouped as outlined in para 16.

16. Culturing of Swabs

Swabs shall be placed on Columbia Blood Agar (4 or 5% sheep RBC's) supplemented with IsoVitalex (Baltimore Biologicals Ltd.), Yeast Supplement B (Difco) or CVA (Gibco) and containing VCNT antibiotic supplement (prepared media obtained from Institut Armand Frappier, Montreal). Plates shall be incubated in an atmosphere of 5-10% CO_2 in air, isolates shall be oxidase tested and positive isolates shall be confirmed as *N. meningitidis* by means of reaction with specific grouping sera (to be supplied by DRES). Either slide agglutination or antiserum agar methods may be used. Meningococcal isolates which are nongroupable in the opinion of laboratory personnel shall be forwarded

to DRES, Attn: Dr. A.R. Bhatti. A loop of colonies of an ungroupable strain shall be placed in TSB containing 10% DMSO as a protective agent, frozen in dry ice and forwarded to DRES in an Isotherm container. All cultures will be packed in accordance with the instructions outlined in Suffield Technical Note No. 399.

17. Serological Samples

At CFB Cornwallis, serum from the 5 mL specimens of blood taken from all recruits on every course is to be retained after VDRL and blood grouping determinations have been completed. Six further 20 mL samples (numbers 1-6) will be taken at each base from all course members as shown on Annex D. It must be noted that serum samples 1 and 4 must be taken prior to immunization.

18. Handling of Blood Samples

The blood samples shall be numbered with individual's master number, SIN and surname and be held at room temperature for one to two hours, then overnight in a refrigerator or cold room at 4°C. Following clot retraction, the serum may be decanted and spun, or the whole sample spun at 2000 RPM for 12 minutes in a refrigerated centrifuge. The separated serum shall be frozen and shipped (in dry ice) in picnic coolers to DRES, Attn: Dr. V.L. DiNinno.

19. Reports and Returns

The results of all PNS culturing shall be entered into the record form shown at Annex B. Copies of the completed forms at the end of the eleventh week and all other reports are to be distributed to the addressees listed in Annex E.

20. At the end of the 11 week training of courses entered into the SIMP, the CF 2016s shall be perused on each individual. Significant respiratory tract infection shall be recorded on the form at Annex B, showing the date, diagnosis and treatment given for this infection.

IN CONCLUSION

21. When a case of acute meningococcal meningitis is diagnosed, Base Surgeons shall send a priority message informing of this fact to DPM and DRES with information copies to the functional and regional command surgeons and the other Base Surgeon (i.e. at CFB Cornwallis or CFB St. Jean). To ensure that DPM is aware at an early date, notification should also be made by phone within 24 hours.

22. All changes or modifications of this protocol or to the programme shall first be discussed with DPM, who is designated by the Surgeon General to be the co-ordinator and authority for the meningococcal control programme.

23. DPM will periodically inform all interested personnel on significant or interesting results and findings.

ANNEX A
TO 6635-036 (DPM)

MINI-PROTOCOL FOR THE TAKING AND HANDLING OF SPECIMENS FROM CASES OF ACUTE MENINGOCOCCAL MENINGITIS

1. The most important aspect in the outbreaks of acute meningococcal meningitis is the care of patient and serological, immunological and microbiological research activities must take second place. In accordance with these principles, the following specimens and samples are requested from each suspected case:

a. A portion (1-2 mL) of cerebrospinal fluid (CSF). It is recognized that little CSF may be available and that the specimen may not be sterile because of the necessary biochemical tests which have been performed, never-the-less residual sample is still of value to principals of the Surgeon-General's programme on Meningococcal Control.

b. A portion (1-2 mL) of blood - both this and the CSF shall be collected from the patient prior to the institution of antibiotic therapy. The anticoagulated whole blood and CSF should be stored at -20°C, but -70°C is preferable. If taken at the receiving hospital, they should be held until picked up by the base hospital personnel who will forward the specimens to DRES.

c. It is requested that a subculture on Columbia Blood Agar of a primary isolate from blood and/or CSF be provided with the above samples. This will be further subcultured at the base hospital in order that isolates can be sent to DRES.

d. In order to study group specific antibody response, it is requested that 2.5 mL of serum be taken from the patient during the acute phase (the institution of antibiotic therapy is not a prohibiting factor) and the same quantity of convalescent serum not sooner than three weeks later,

.../2

but not later than six weeks after the onset of the acute disease. The first sample is to be picked up by the base hospital personnel and stored in the deep freeze until matched by the convalescent serum, both of which are then to be sent to DRES.

e. A nasopharyngeal swab is to be taken on admission to the base hospital and subcultures of any *N. meningitidis* isolate sent to DRES.

ANNEX B
TO 6635-036 (DPM)

THROAT SWAB REPORTS

Unit _____ Course _____

Master No or SIN	POST NASAL SWABS											Significant Respiratory Tract Infection Information		
	1	2	3	4	5	6	7	8	9	10	11			
	ACMP RMCP SIMP	ACMP SIMP	ACMP SIMP	ACHP RMCP SIMP	SIMP	SIMP	SIMP	SIMP	RMCP SIMP	SIMP	SIMP			
	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Dx	Rx
Percentage of Positive Isolates														

ANNEX C
TO: 6635-036 (DPM)

AIR AND SURFACE SAMPLING

Unit _____ Programme: RMCP/SIMP/ACMP Date: _____

Course Number: _____ Week Number _____

Number of Individuals Present During Sampling: _____

Dry Bulb: _____ Wet Bulb: _____ Relative Humidity: _____

Sample Time: _____ hours Sample Duration: _____ minutes

AIR

	Growth	Oxidase Neg/Pos	Group
Barracks			
Ablution Area			
Swimming Pool Area (ACMP ONLY) #1			
#2			

SURFACE

Bed Clothes			
1.			
2.			
Floor Lockers			
1.			
2.			
Tap			
Swimming Pool Area			
1.			
2.			
Others (ACMP ONLY)			

ANNEX D
TO: 6635-036 (DPM)
Dated: 20 Nov 75

SPECIALIZED AND INTENSIVE MONITORING PROGRAMME, PNS IMMUNIZATION

SERUM DRAWING AND AIR AND SURFACE SAMPLING SCHEDULE

Calendar Day	Training Day	PNS	Immunization	Serum	Air and Surface Sampling
1 or 2	1 Monday or 2 Tuesday	1st week	TB Test Meningococcal Vaccine TABTD-Polio (1)	Prior to imminization (1)	
9	7 Tuesday	2nd week		(2)	2nd week
15	11 Monday	3rd week			
18	14 Thrusday			(3)	
22	16 Monday	4th week			4th week
29 or 30	21 Monday or 22 Tuesday	5th week	Yellow Fever TABTD-Polio (2)	Prior to Immunization (4)	
38	28 Wedesday	6th week		(5)	
43	31 Monday	7th week			
50	36 Monday	8th week			
57	41 Monday	9th week			
64 or 65	46 Monday or 47 Tuesday	10th week	Smallpox TABTD-Polio (3)		
73	53 Wednesday	11th week		(6)	

ANNEX E
TO 6635-036 (DPM)

Postal Addresses for All Members and Units Concerned with the Meningitis Control Programme

NDHQ

National Defence Headquarters
101 Colonel By Drive
Ottawa, Ontario
K1A 0K2

Attention: DPM-3

(Telephone: 613-995-5205)

CFB St. Jean

Headquarters
Canadian Forces Base St. Jean
Richelain, Quebec
J0J 1R0

Attention: Base Surgeon

(Telephone: 514-346-2656)

CFB Cornwallis

Headquarters
Canadian Forces Base Cornwallis
Cornwallis, Nova Scotia
B0S 1H0

Attention: Base Surgeon

(Telephone: 902-638-8631, Ext. 214)

DRES

Chief
Defence Research Establishment Suffield
Ralston, Alberta
T0J 2N0

Attention: Dr. L.A. White

(Telephone: 403-544-3701, Ext. 264)

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KEY WORDS

Meningitis

Neisseria meningitidis

Carriers

Air Sampling

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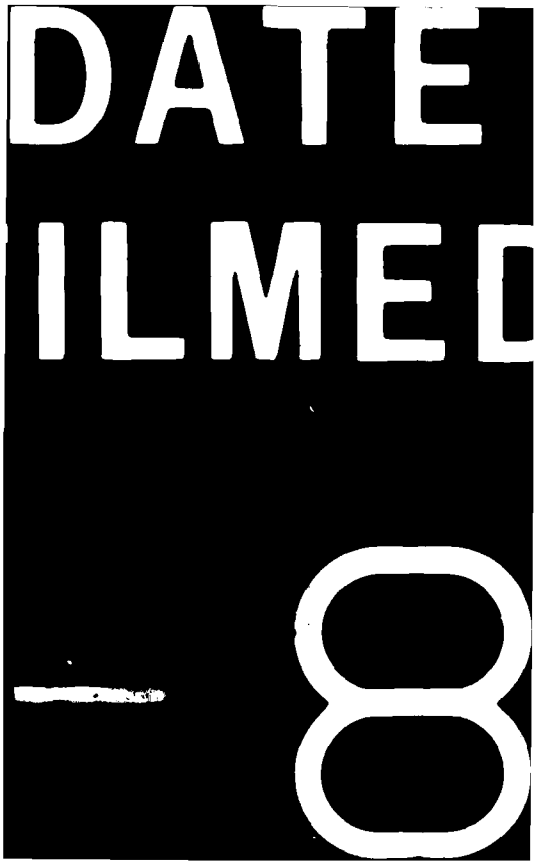
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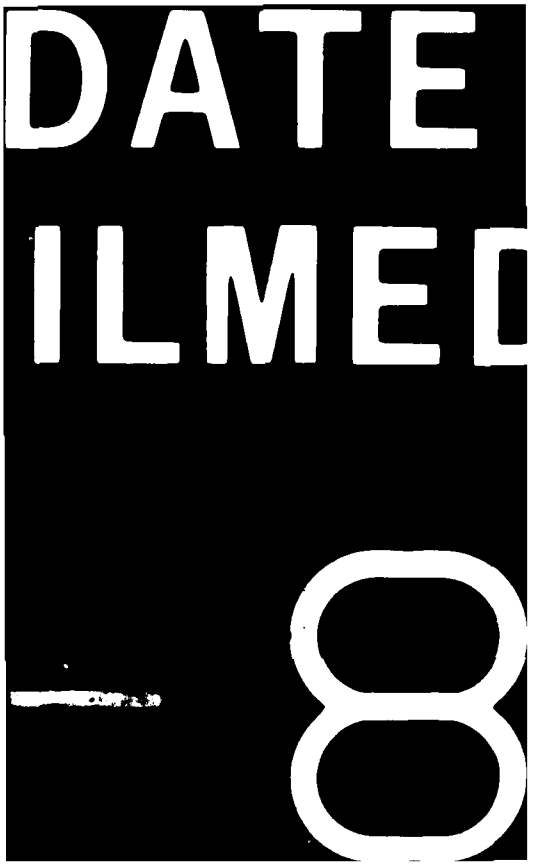
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